Jefferson Lab
Self-Assessment Program Manual

Revision 6
December 2000

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Revision and Approval

This statement of the Jefferson Lab Self-Assessment Program Manual (Revision 6) supersedes and cancels Thomas Jefferson National Accelerator Facility Self-Assessment Program Overview Revision 5, dated June 1998, and is effective upon receipt.

Submitted by

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Approved by the JLab Director's Council December _____, 2000.

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I. Introduction

Self-assessment provides laboratory management with unique opportunities to document and demonstrate their successes and accomplishments while at the same time identifying opportunities for improvement. In addition, because of Performance-Based Contracting and Integrated Safety Management (ISM) self-assessment is critical to the DOE/JLab relationship.

Performance-Based Contracting and ISM mesh well with JLab's long standing philosophy of emphasizing performance and results rather than compliance with a dictated process. JLab's performance-based contract defines quantitative performance measures that provide the primary evidence for judging the level of laboratory performance. This contract replaces many DOE directives with negotiated performance measures and tailored contractual requirements and includes SURA's commitment to the DOE Integrated Safety Management System (ISMS) Policy. DOE Office of Science guidance on ISM provides for a DOE oversight approach that relies on vigorous contractor self-assessment and includes operational awareness with emphasis on EH&S performance.

This Jefferson Lab Self-Assessment Program (JLSAP) Manual describes the full range of Lab self-assessment activities, but focuses on Line Self-Assessment (LSA) and Independent Self-Assessment (IA). In particular, it offers to line management guidance for accomplishing Line Self-Assessment. The JLSAP provides information and insight to JLab management for planning, decision making, and problem solving, and forms the foundation for continuous improvement and “lessons learned” activities. It provides the procedures that satisfy the laboratory’s policy on assessment contained in the JLab Quality Assurance Program Manual (QAPM) which was approved by DOE Office of Energy Research February 18, 1993 (revision 4 of the QAPM was issued in October 2000).

II. Overview of the Jefferson Lab Self-Assessment Program (JLSAP)

JLab's basic self-assessment program has been in place since January 1993 and has undergone 6 revisions. In September 1996, the Lab Director announced that the importance of self-assessments performed by the line organizations would be increased substantially to ensure line management "ownership" of self-assessments and their results. Line Self-Assessments, in order to provide valuable insight and information to the performing manager, the Director, and senior management, must be value-added, balanced, include an integrated, contextual view of EH&S, and meet negotiated DOE expectations. Revision 4 of this procedure provided direction for increased emphasis on line management "ownership" and performance assessment. Revision 5 provided additional principles reflecting lessons learned during early Line Self-Assessments. This

revision incorporates further lessons learned and, in particular, strengthens the linkage between LSAs and continuous improvement by focusing attention on corrective action plans.

Self-Assessment at JLab is accomplished by:

- Line Self-Assessment (LSA)
- Independent Self-Assessment (IA)
- Appendix B (Contract) Performance Report (includes self-assessment activity)
- Baldrige Self-Assessment
- Individual Self-Assessment
- Division Self-Assessment Activities

The Office of Technical Performance (OTP) is responsible for providing independent oversight and assessment of laboratory performance. The Self-Assessment and Quality Assurance (SA/QA) Group develops Self-Assessment policies and procedures for approval by Director's Council; facilitates implementation of these policies; conducts independent assessments; recommends improvement and corrective actions; tracks findings and commitments resulting from independent assessments or lab-wide assessments through corrective action planning, execution, and closure; monitors corrective action effectiveness; and provides appropriate self-assessment information, advice and training, when requested.

The SA/QA Officer prepares and issues an annual report of the self-assessment activities described in this manual.

III. Self-Assessment Program Description

JLab's self-assessment program involves assessment at multiple organizational levels - from individual employees to Lab-wide organizational elements. The sections that follow describe the components of the Lab's self-assessment program, but focus on LSA and IA.

A. Line Self-Assessment (LSA)

Associate Directors have the responsibility and authority to determine the effectiveness of ongoing activities in their divisions and to ensure that LSAs, as described in this manual, are accomplished appropriately. Assistance is available from the SA/QA Group.

LSAs are done annually by line managers in all three divisions. The schedule for these assessments, issued by the SA/QA Officer early in the year after consultation with the divisions, can be changed at the request of an Associate Director.

The elements to be addressed in LSA are listed in Appendix A along with guidance for the managers performing the assessments. The LSA identifies both accomplishments and deficiencies in the line organization's performance during the preceding year; EH&S issues are addressed within the context of the organization's work. Corrective action plans are an essential part of the LSA and address deficiencies found during the LSA as well as those found during the year through other assessment activities, *e.g.*, Independent Assessment, EH&S inspections, outside reviews, *etc.*

LSA reports, prepared by line managers, are reviewed by appropriate management and staff (as designated by the Division Associate Director) and submitted to the Director's Office. The SA/QA Group reviews the submitted LSA reports for comprehensiveness and credibility and provides appropriate endorsement. The Director reviews each completed LSA report and either approves it or returns it for correction. Approved reports are distributed to appropriate JLab, SURA, and DOE personnel. LSA reports are key parts of the DOE site office operational awareness program.

The affected line organization is responsible for planning and implementing corrective actions that address deficiencies noted during the performance of these assessments and for sharing lessons learned, as appropriate.

Because LSA includes line management review of the results of the previous year's improvement action plans, no additional tracking of these plans is necessary.

B. Independent Assessment (IA)

JLab Independent Self-Assessment, termed Independent Assessment (IA), is intended to identify improvement opportunities and to provide management and staff with an independent overview of laboratory performance in order to enhance overall effectiveness. The SA/QA Group, who are independent of line duties, perform these assessments. IAs have two goals: (1) to evaluate organizational units with a focus on EH&S and (2) to identify for management improvement opportunities that may cut across multiple organizational boundaries. In the conduct of these assessments the SA/QA Group will consider current practices, costs, effectiveness, risks, and similar factors. Organizational units are reviewed on a rotating three-year schedule while cross-cutting topics are selected by senior management in areas judged to have a high probability of yielding significant opportunities for improvement. Compliance with contractual and applicable regulatory requirements, including those in the EH&S Manual and other laboratory directives, is an integral part of IAs.

Scheduled Independent Assessments

Four in-depth IAs are scheduled annually. Concurrence of division management is obtained prior to performing these assessments. Scheduled IAs do not preclude special assessments, investigations, analyses, LSA reviews, *etc.*, as considered necessary by the SA/QA Officer or desired by laboratory management. A formal report is issued for each scheduled IA performed. Members of the organizational unit being assessed and any organizational unit affected review the draft report for factual accuracy. Members of Director's Council receive a copy of the report a week before it is sent to SURA and the DOE Site Office.

Special Independent Assessments

Special assessments, such as investigations, analyses, LSA reviews, corrective action follow-up for effectiveness, *etc.*, as considered necessary or desired by the SA/QA Officer or the laboratory management, are in addition to the scheduled IAs described above. Reports may be informal and as simple and concise as circumstances permit. Distribution is limited to those directly concerned.

C. Performance Evaluation by Performance-Based Metrics

JLab reports on its performance as defined in Appendix B of the DOE/SURA contract. This Contract Performance Report includes for each performance category, in addition to actual performance metric scores and/or peer review results, an overview self-assessment which includes: a brief description of major achievements, significant strengths and weaknesses, the status of responses to recommendations from the Peer Reviews, an assessment of whether the performance measures were valid indicators of performance, lessons learned, principal areas of emphasis for improvement in the following fiscal year, and any recommended changes in performance measures or goals for the following fiscal year. A discussion of the Laboratory's overall performance is also included.

D. Baldrige Self-Assessment

OTP arranges for external examiners to perform Baldrige assessment when the Director's Council considers this appropriate.

E. Individual Self-Assessment

JLab staff perform individual self-assessments as input to their annual performance evaluation. The Lab's Administration Manual (section 208.11) offers guidance for this individual self-assessment and the Human Resources Department offers classroom instruction to help staff perform effective individual self-assessment.

F. Division Self-Assessment Activities

Regularly scheduled functional inspections of line EH&S activities are conducted and tracked by EH&S personnel in all divisions. Copies of these reports are provided to the SA/QA Group for review, monitoring, and use in the independent assessment process.

Administration Division

The primary mission of the Administration Division is to provide effective, efficient administrative and facilities support for the Lab's basic research mission. Through LSAs, the Contract Performance Report, and the annual Administrative Peer Review, Administration Division managers annually assess their mission accomplishments within their administrative functions.

Accelerator Division

The Accelerator Division's primary mission is the construction, commissioning, and operation of the Lab's accelerators and the dependable delivery of electron and photon beams meeting world class standards and user specifications. The Division relies on LSAs, the Contract Performance Report, and the annual Science and Technology Review to measure its accomplishments annually.

Special assessment procedures have been established for use during accelerator commissioning. During the commissioning of CEBAF the Accelerator Readiness Review (ARR) Team, which included members from the Accelerator, Physics, and Administration Divisions and the Office of Technical Performance, created an extensive self-assessment process to determine readiness to proceed to the next phase of testing. The hardware, procedures, and personnel necessary for future JLab testing and operations were identified and divided into elements. Criteria for examination of these elements, including EH&S requirements, were developed. For each major phase of testing a rigorous review process was then conducted through:

1) Substantive self-assessment by the responsible person in line management, who ascertained the readiness of each item;
2) Objective detailed review by an appointed knowledgeable expert, who also ascertained readiness; and
3) Identification of issues and concerns resulting from the double reviews.

All issues were evaluated to determine potential effects on pending activities. Corrective actions were developed and completed. All issues and concerns were tracked until satisfactorily resolved. ARRs performed by external experts at key intervals validated

the process. Each of these external reviews resulted in a review report. The resolution of all issues and concerns was documented in ARR closure reports.

The same procedures were used effectively during the commissioning of the Free Electron Laser (FEL).

Physics Division

Physics Division self-assessment is directed toward the division's primary mission of developing and providing experimental facilities and support for top-level experiments and experimenters. The development and construction of major new experimental equipment is the work of large collaborations of physicists, engineers, students, and postdocs for each hall. JLab staff are key members of these collaborations providing leadership and management functions. Technical subcommittees and working subgroups develop detailed plans for equipment installation and use. Assessment of the quality and progress of these activities is accomplished by peer review at collaboration meetings usually held twice per year.

Assessment of the experimental physics program is accomplished by a process that determines which experiments run, defines major new directions for facility capabilities, and ensures the safety of each experiment. This process involves:

1) Review of proposed experiments by the Physics Division's Technical Advisory Committee for feasibility and impact on laboratory resources.
2) Review by an external Program Advisory Committee (PAC), consisting of recognized nuclear physics experts chosen to provide broad perspective and expertise. The PAC reviews proposed experiments for scientific merit, technical feasibility, and manpower requirements and makes recommendations to the Director for final decision.
3) Detailed internal review of the safety of each experiment, including the equipment to be used and the conduct of operations documentation.

IV. Corrective/Improvement Action Tracking

Corrective action plans are prepared in response to deficiencies identified in assessments, appraisals, or reviews. These plans are tracked to completion and closure and the effectiveness of the corrective actions is evaluated.

The SA/QA Group is responsible for coordinating the responses and maintaining the reports and records for external, institution-wide assessments and appraisals and for IAs. The SA/QA Group tracks the identified deficiencies and corresponding corrective actions until the actions are completed and the deficiencies closed. The group provides status

reports to Lab management and the DOE Site Office, as appropriate, and maintains a database of deficiencies, corrective actions, and closures.

Corrective actions resulting from peer review recommendations and findings from division-specific assessments, appraisals, and reviews are managed and tracked by the organizational unit that was assessed, appraised, or reviewed, not by the SA/QA Group.

Inspection deficiencies and the corresponding corrective actions are likewise not included in the SA/QA database. The affected division maintains records of inspections, deficiencies, and their correction. Information is provided regarding these inspections to the DOE Site Office by the EH&S Reporting Group in accordance with EH&S Chapter 5100.

V. Self-Assessment Reports and Distribution

Formal SA reports required by the JLSAP are distributed to:

- SURA,
- Director,
- Director's Council,
- Laboratory Staff directly involved with an assessment, and
- DOE Site Office.

Appendix A

Guidance for Completing Line Self-Assessments

The guidance offered in this appendix is intended to aid line managers in performing and improving their LSAs. If requested, the SA/QA Group will assist line managers. The guidance includes:

- *General comments.* These bullets should be kept in mind during the LSA process.
- *Elements to be included in the LSA.* These seven topics are to be included in each LSA. Different divisions may choose to emphasize different elements, but all are to be addressed. The bullets included under each element are intended to guide the line manager in the assessment process.
- *Additional elements*. Divisions may choose to include topics beyond the seven listed.
- *A "sample" LSA Report* to supplement the other guidance. This fictional LSA report for Hall D in 2011 may help clarify the instructions and suggestions included with the elements.
- *Templates* for the LSA Report and cover page. Use of the cover page template will facilitate correct routing of the completed report.

General comments

- An LSA should add value. If it doesn't, the process is not working correctly and the line manager should contact the SA/QA Officer.
- Since multiple perspectives improve an LSA, soliciting input from group leaders, safety wardens, EH&S professionals and other staff is recommended.
- Since one of the main goals of self-assessment is quality improvement, particular attention should be paid to corrective action plans.
- Reports of completed LSAs must provide evidence that EH&S functions and activities are an integral but visible part of laboratory work planning and performance. See II, III, and IV below.
- Bullets rather than extended narrative may be used where appropriate. See the "sample" LSA report for Hall D.

Elements to be Included in Line Self-Assessments

Line Self-Assessments will include the following seven elements (the eighth is optional) with the degree of emphasis desired by the cognizant Associate Director:

I. Department or group's mission and staffing

- Although missions tend to be stable, they should be reviewed each year and revised as necessary in the LSA report. Changes from previous years should be highlighted.
- Staffing levels should be described and changes noted.

II. Contributions to the Jefferson Lab performance measures described in Appendix B of the SURA/DOE contract.
- Emphasize contributions to the principal measures affected.
- If a performance measure does not apply to the group's activities, say so.
- The "Quality Performance in EH&S" measure is always to be addressed.
- Examples should be used when appropriate to illustrate more general statements.

III. Significant targets for the year covered by the assessment. These targets, grouped by performance measure, should be as explicit and specific as practical. They should include those set externally (outside the group) as well as those set by the department or group. Targets include
- Expectations,
- Goals,
- Commitments including those made in corrective action plans resulting from last year's LSA,
- EH&S inspections, and
- Independent Assessments
- Applicable laboratory requirements (*e.g.*, 3-year reviews of EH&S chapters by responsible authors) and other management issues.

IV. Performances which met or exceeded their targets.
- Noteworthy accomplishments should be highlighted.
- Examples including objective measures of success should be used when appropriate.

V. Performances which failed to meet targets.
- If all targets were met, say so.
- When appropriate, an explanation of the reasons for the failure to meet a target should be included.

VI. Improvement plans for the coming year.
- These plans should include:
  - action intended,
  - date by which action is to be completed, and
  - person responsible if other than the reporting manager.

⊡ They should address:
  - all deficiencies identified in paragraph V,

- open deficiencies identified in Independent Assessments, and
- recurring items from EH&S inspections.

⊡ In the spirit of continuous improvement consideration should be given to creating improvement plans for areas in which there are opportunities to improve even though no deficiencies exist.
  - Improvement action plans should include sufficient information to facilitate completion and closure.
  - Recommendations for corrective actions by parties outside the department or group may be noted, but the actions must be separately requested. The LSA report is not the vehicle for requesting such actions.

VII. Any "Notable Events" or "lessons learned" associated with information contained in the LSA that should be shared with others.

⊡ If these lessons have been shared, indicate how it was done.

⊡ If not yet shared, include plans for sharing.

VIII. Any additional elements the Division wishes to include in its LSAs.

Sample LSA Report

The sample LSA Report on the next few pages is intended to clarify the guidance given above by showing how it might be applied by a fictitious Hall D leader in 2011.

LINE SELF-ASSESSMENT REPORT

Department/Group: Hall D
Manager: P.A.M. Dirac
Period covered by assessment: From 1/1/10 To 12/31/10
Date of report 2/1/11

I. Mission and staffing

The mission of the Hall D group within the Physics Division is - in close collaboration with outside user groups - to operate Hall D instrumentation for high quality nuclear physics research and to assist in the analysis, interpretation and publication of the results. The mission also includes the design, construction, and commissioning of new or supplementary apparatus as required for specialized experiments. This mission remains unchanged.

The permanent Hall D staff consists of 15 physicists (including the hall leader), 2 mechanical engineers, 1 electrical engineer, 1 designer and 4 technicians (a fifth technician is authorized but has not been hired). Note that during the past year Hall D staff has increased by 2 - 1 physicist and 1 electrical engineer. In addition to the permanent staff, there are 3 postdoctoral fellows and 2 technicians in temporary positions. All members of the physics staff have broad experience (acquired at accelerator facilities in the U.S. and abroad) in planning, conducting and analyzing subatomic physics experiments. The technical staff come from a variety of backgrounds, typically outside experimental subatomic physics. Extensive cross training enables the technical staff to cover a wide variety of tasks outside their direct areas of expertise.

II. Contributions to Jefferson Lab performance measures

The Hall D group contributes to the laboratory's performance goals primarily in two categories: Outstanding Science and Technology and Reliable Operations.

Outstanding Science and Technology: The Hall D group makes important contributions to the laboratory's performance goals in the Science and Technology category. As one of the four experimental areas, it is responsible for one fourth of the points available in this category. Hall D has been in full operation since 2008 with increasing experimental output. In addition, Hall D staff are heavily involved in assisting outside collaborators with the acquisition and analysis of experimental data.

Reliable Operations: Reliable operation of Hall D equipment is essential for the experiments to be completed in a timely fashion. The Hall D leader has

responsibility for the design, construction, commissioning and operation of Hall D equipment. 2010 saw the successful installation of the new high energy, high-resolution detector system. This installation was completed on time and slightly under budget. The new detectors have operated as planned causing no significant downtime.

Production of Scientific and Technical Manpower: All of the collaborations working in Hall D include advanced degree students. Thesis data for seven Ph.D. and two M.S. students were collected during the past year. Two Ph.D.s were awarded last year based on work done in Hall D in previous years. One of these was from a minority university and was earned by a student from a group traditionally underrepresented in physics.

Corporate Citizenship: Not applicable.

Quality Performance in EH&S: Hazards faced by Hall D staff include standard industrial safety hazards, especially electrical, crane, oxygen deficiency, explosive gases and radiation. Because of attention to training, procedures, and inspection and assessment results, again this year there were no occupational injuries within the group or among the collaborators working in Hall D.

Quality of Business and Administrative Practices: Not applicable.

Responsible Institutional Management: The Hall leader exercises tight control over purchase requisitions and travel requests to ensure that the Hall budget is not exceeded. The goal is always to do the most with the least. This applies to dollars and staff. Design reviews for experimental equipment focus on cost-saving opportunities. Staff are cross-trained to ensure maximum capabilities within the group.

III. Significant targets during past year

Outstanding Science and Technology:

- Complete the installation of the new high energy, high-resolution detector system.
- Stage and conduct the approved and scheduled list of experiments while ensuring that measurement precision and accuracy goals are met.
- Hire additional physicist.
- Hire electrical engineer.

Reliable Operations:

- Ensure Hall D equipment is operational during scheduled run periods (95% level).

- Hire fifth technician.
- Train one technician in thin wall stainless steel welding techniques.

Production of Scientific and Technical Manpower:

- Support graduate students in Hall D collaborations.

Quality Performance in EH&S:

- No occupational injuries among the Hall D Group.
- No occupational injuries among Hall D collaborators.
- Review/update Chapter 6270 in the EH&S Manual (3-year review).
- Maintain EH&S training currency.
- Correct EH&S inspection deficiencies within one month.

Responsible Institutional Management:

- Ensure cost-effective technical solutions.
- Extend staff capabilities.

IV. Performances which met or exceeded targets

Outstanding Science and Technology: All targets in this area were met. Of particular note was the installation of the new detector system. Because of good planning this major effort was completed on time and the detector system is already in use for experiment E04-2G.

Reliable Operations: Hall D experimental equipment was operational 97% of the scheduled time. This exceeds the 95% goal and is particularly noteworthy because of the new detector system.

Production of Scientific and Technical Manpower: The target in this area was met. Seven Ph.D. and two M.S. candidates collected data in Hall D last year.

Quality Performance in EH&S: There were no injuries in Hall D, but there was a near miss. All EH&S training was current throughout the year. EH&S inspection deficiencies were corrected within two weeks on average.

Responsible Institutional Management: Because of cost-effective solutions to technical challenges on the new detector system, the project was completed slightly under budget.

Continued cross training has resulted in the group's ability to meet its operational goals in spite of a lean staffing level.

V. Performances which failed to meet targets

Reliable Operations: Because of budget constraints plans to train one of the Hall technicians in welding thin wall stainless steel was not accomplished. Fortunately, when this skill was needed we were able to borrow a welder from the Accelerator Division. Still, this is a skill we need within the group.

The fifth technician was not hired. This put an added burden on the staff and could have led to unscheduled downtime.

Quality Performance in EH&S: Although there were no accidents in the Hall, there was a near miss. So while technically the no-injury targets were met, the safety performance did not meet expectations. Similarly, although the required EH&S training was current, the training requirements were not complete.

The rewrite of Chapter 6270 in the EH&S Manual was not done. This Chapter was last reviewed and updated more than three and a half years ago. A start has been made on the review.

VI. Improvement action plans

Reliable Operations:

- Train at least one technician in thin wall stainless welding techniques. A training course has been identified and its cost is to be included in the FY2012 budget. Training is to be complete by 9/30/11.
- Hire fifth technician. Update the job description for HR by 7/15/11. Hire by 12/31/11.

Quality Performance in EH&S:

- Schedule lock-out/tag-out training for all Hall D staff who had not had the training. Training completed 1/12/11.
- Update training requirements for Hall D to include lock-out/tag-out level I. Done 12/15/10.
- Review and update Chapter 6270. Draft for level 2 review to be complete by 4/15/11. Revisions complete with 30 days of receiving comments on draft. Responsible person: Ernst Mach.

Other:

- Reduce transient trash in Hall D. Transient trash in the Hall is a fire hazard and has been noted on multiple EH&S inspections of the Hall. The work coordinator has been assigned the responsibility of checking for and eliminating transient trash. The status of this effort will be reviewed at least monthly at regular Hall meetings.
- Update Conduct of Operations documentation. The IA of Hall D last year pointed out that the Hall's COO was in need of work. Some of the information is out of date; other is inconsistent. Max Born is responsible for updating the COO by 7/1/11.

VII.“Lessons learned”

During installation of the new detector system one of the Hall’s postdocs began work on a magnet without first locking out its power supply. The hall work coordinator noticed the dangerous situation and stopped the postdoc before he was hurt. Since postdocs seldom do work that requires lock-out/tag-out, lock-out/tag-out training had not been required for postdocs in Hall D. It is now. The incident was written up and the report was posted on the Lab’s Lesson Learned web page.

Templates for Line Self-Assessments

Templates on the next two pages are used for reporting the results of LSAs. The report template ensures that all seven elements described above are addressed. The report cover sheet facilitates the report review and approval process

LINE SELF-ASSESSMENT REPORT

Department/Group: _____
Manager: _____
Period covered by assessment: From _____ To _____
Date of report _____

I. Mission and staffing.

II. Contributions to Jefferson Lab performance measures.

III. Significant targets during the past year.

IV. Performances which met or exceeded targets.

V. Performances which failed to meet targets.

VI. Improvement action plans.

VII. “Lessons learned”

Jefferson Lab
Line Self-Assessment Report

Review & Approval

Division

Division		Department/Group	
Performed by	Date	Reviewed by	Date
Reviewed by	Date	Reviewed by	Date

Director's Office Staff
Receipt

Received by	Date

Office of Technical Performance
Review

Received by	Date
Comments:	
Recommendation:	

Director's Approval

	Date